

CLAIMS

1. A production method for an electronic apparatus comprising a board having a separable region, said board being mounted with a central processing unit, an electrically alterable nonvolatile storage device, and a connector mounted on said region, wherein when said region is separated, data cannot be written to said storage device by directly controlling an internal circuit of said central processing unit, said production method comprising:

a writing step of writing data to said storage device by connecting an external apparatus to said connector and by directly controlling an internal logic circuit of said central processing unit; and

a separating step of separating said region after said writing step.

2. A production method for an electronic apparatus according to claim 1, wherein said central processing unit is sealed in such a manner that, when mounted on said board, terminals of said central processing unit cannot be touched from outside.

3. A production method for an electronic apparatus according to claim 1, wherein said board is

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a multi-layer board consisting of at least four layers, and at least one connecting line connecting between said central processing unit and said connector is formed in an inner layer of said board.

4. A production method for an electronic apparatus comprising a board having a separable region, said board being mounted with a central processing unit, an electrically alterable nonvolatile storage device, a connector, a relaying device for connecting at least one terminal of said connector to at least one terminal of said central processing unit, and a detection device for detecting whether said region is separated or not, wherein when said region is separated, said relaying device, based on an output signal from said detection device, disconnects at least one connecting line connecting the terminal of said connector to the terminal of said central processing unit so that data cannot be written to said storage device by directly controlling an internal circuit of said central processing unit, said production method comprising:

a writing step of writing data to said storage device by connecting an external apparatus to said connector and by directly controlling an internal logic circuit of said central processing unit; and

a separating step of separating said region after

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said writing step.

5. A production method for an electronic apparatus according to claim 4, wherein said central processing unit and said relaying device are sealed in such a manner that, when mounted on said board, the terminals of said central processing unit and said relaying device cannot be touched from outside.

6. A production method for an electronic apparatus comprising a board having a separable region, said board being mounted with a central processing unit, an electrically alterable nonvolatile storage device, a connector, a relaying device for connecting at least one terminal of said connector to at least one terminal of said central processing unit, a scrambling device, and a detection device for detecting whether said region is separated or not, wherein:

when said region is not separated yet, data read out of said storage device can be descrambled by said scrambling device and the descrambled data can be transferred to said central processing unit, and by connecting an external apparatus to said connector and directly controlling an internal logic circuit of said central processing unit, said central processing unit can be caused to output data to said scrambling device

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and said scrambling device can scramble the output data of said central processing unit and write the scrambled data to said storage device; and

when said region is separated, data read out of said storage device can be descrambled by said scrambling device and the descrambled data can be transferred to said central processing unit, but said scrambling device cannot write data to said storage device based on an output signal of said detection device,

said production method comprising:

a writing step in which by connecting said external apparatus to said connector and directly controlling the internal logic circuit of said central processing unit, said central processing unit is caused to output data to said scrambling device, and in which said scrambling device scrambles the output data of said central processing unit and writes the scrambled data to said storage device; and

a separating step of separating said region after said writing step.

7. A production method for an electronic apparatus according to claim 6, wherein said relaying device, said scrambling device, and other circuits essential to the operation of said electronic apparatus are contained in a single semiconductor device.

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8. A production method for an electronic apparatus according to claim 7, wherein said central processing unit and said semiconductor device are sealed in such a manner that, when mounted on said board, terminals of said central processing unit and said semiconductor device cannot be touched from outside.

9. A production method for an electronic apparatus according to claim 6, wherein when said region is separated, said scrambling device disconnects a line used to transfer a write strobe signal from said central processing unit to said storage device.

10. A production method for an electronic apparatus comprising a board having a separable region, said board being mounted with a central processing unit, an electrically alterable nonvolatile storage device, a connector, a scrambling device, and a detection device for detecting whether said region is separated or not, wherein:

when said region is not separated yet, data read out of said storage device can be descrambled with a first scrambling pattern by said scrambling device and the descrambled data can be transferred to said central processing unit, and by connecting an external apparatus

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to said connector and directly controlling an internal logic circuit of said central processing unit, said central processing unit can be caused to output data to said scrambling device and said scrambling device can scramble the output data of said central processing unit with first scrambling pattern and write the scrambled data to said storage device; and

when said region is separated, based on an output signal of said detection device, data read out of said storage device can be descrambled with first scrambling pattern by said scrambling device and the descrambled data can be transferred to said central processing unit, and by connecting said external apparatus to said connector and directly controlling the internal logic circuit of said central processing unit, said central processing unit can be caused to output data to said scrambling device and said scrambling device can scramble the output data of said central processing unit with a second scrambling pattern and write the scrambled data to said storage device,

said production method comprising:

a writing step in which by connecting said external apparatus to said connector and directly controlling the internal logic circuit of said central processing unit, said central processing unit is caused to output data to said scrambling device, and in which said scrambling device scrambles the output data of said

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central processing unit with the first scrambling pattern and writes the scrambled data to said storage device; and

a separating step of separating said region after said writing step.

11. A production method for an electronic apparatus according to claim 10, wherein said scrambling device, said detection device, and other circuits essential to the operation of said electronic apparatus are contained in a single semiconductor device.

12. A production method for an electronic apparatus according to claim 11, wherein said semiconductor device is sealed in such a manner that, when mounted on said board, terminals of said semiconductor device cannot be touched from outside.

13. A production method for an electronic apparatus according to claim 4, wherein said board is a multi-layer board consisting of at least four layers, and a line used to carry a detection signal indicating whether said region is separated or not is formed in an inner layer of said board.

14. A production method for an electronic

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apparatus according to claim 6, wherein said board is a multi-layer board consisting of at least four layers, and a line used to carry a detection signal indicating whether said region is separated or not is formed in an inner layer of said board.

15. A production method for an electronic apparatus according to claim 10, wherein said board is a multi-layer board consisting of at least four layers, and a line used to carry a detection signal indicating whether said region is separated or not is formed in an inner layer of said board.

16. A production method for an electronic apparatus according to claim 4, wherein said board is a multi-layer board consisting of at least four layers, and at least one connecting line connecting between said central processing unit and said relaying device is formed in an inner layer of said board.

17. A production method for an electronic apparatus according to claim 6, wherein said board is a multi-layer board consisting of at least four layers, and at least one connecting line connecting between said central processing unit and said relaying device is formed in an inner layer of said board.

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18. A production method for an electronic apparatus according to claim 10, wherein said board is a multi-layer board consisting of at least four layers, and at least one connecting line connecting between said central processing unit and said relaying device is formed in an inner layer of said board.

19. A production method for an electronic apparatus according to any one of claims 1 to 18, wherein said central processing unit is an IEEE 1149 standard compliant device.

20. An electronic apparatus comprising a board having a separable region, said board being mounted with a central processing unit, an electrically alterable nonvolatile storage device, and a connector mounted on said region, wherein

when said region is not separated yet, data can be written to said storage device by connecting an external apparatus to said connector and directly controlling an internal logic circuit of said central processing unit, and

when said region is separated, data cannot be written to said storage device by controlling said central processing unit.

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21. An electronic apparatus comprising a board having a separable region, said board being mounted with a central processing unit, an electrically alterable nonvolatile storage device, a connector, a relaying device for connecting at least one terminal of said connector to at least one terminal of said central processing unit, and a detection device for detecting whether said region is separated or not, wherein

when said region is not separated yet, data can be written to said storage device by connecting an external apparatus to said connector and directly controlling an internal logic circuit of said central processing unit, and

when said region is separated, said relaying device, based on an output signal from said detection device, disconnects at least one connecting line connecting the terminal of said connector to the terminal of said central processing unit so that data cannot be written to said storage device by directly controlling the internal circuit of said central processing unit.

22. An electronic apparatus comprising a board having a separable region, said board being mounted with a central processing unit, an electrically alterable nonvolatile storage device, a connector, a relaying device

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for connecting at least one terminal of said connector to at least one terminal of said central processing unit, a scrambling device, and a detection device for detecting whether said region is separated or not, wherein:

when said region is not separated yet, data read out of said storage device can be descrambled by said scrambling device and the descrambled data can be transferred to said central processing unit, and by connecting an external apparatus to said connector and directly controlling an internal logic circuit of said central processing unit, said central processing unit can be caused to output data to said scrambling device and said scrambling device can scramble the output data of said central processing unit and write the scrambled data to said storage device; and

when said region is separated, data read out of said storage device can be descrambled by said scrambling device and the descrambled data can be transferred to said central processing unit, but said scrambling device cannot write data to said storage device based on an output signal of said detection device.

23. An electronic apparatus comprising a board having a separable region, said board being mounted with a central processing unit, an electrically alterable nonvolatile storage device, a connector, a scrambling

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device, and a detection device for detecting whether said region is separated or not, wherein:

when said region is not separated yet, data read out of said storage device can be descrambled with a first scrambling pattern by said scrambling device and the descrambled data can be transferred to said central processing unit, and by connecting an external apparatus to said connector and directly controlling an internal logic circuit of said central processing unit, said central processing unit can be caused to output data to said scrambling device and said scrambling device can scramble the output data of said central processing unit with said first scrambling pattern and write the scrambled data to said storage device; and

when said region is separated, data read out of said storage device can be descrambled with said first scrambling pattern or with a second scrambling pattern different from said first scrambling pattern by said scrambling device, and the descrambled data can be transferred to said central processing unit, and by connecting said external apparatus to said connector and directly controlling the internal logic circuit of said central processing unit, said central processing unit can be caused to output data to said scrambling device and said scrambling device can scramble the output data of said central processing unit with said second scrambling

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pattern and write the scrambled data to said storage device.

24. An electronic apparatus comprising a board having a first separable region and a second separable region, said board being mounted with a central processing unit, an electrically alterable nonvolatile storage device, a scrambling device, a detection device for detecting whether said first region is separated or not, and a detection device for detecting whether said second region is separated or not, wherein:

when neither said first region nor said second region is separated yet, data read out of said storage device can be descrambled with a first scrambling pattern by said scrambling device and the descrambled data can be transferred to said central processing unit, and by connecting an external apparatus to said connector and directly controlling an internal logic circuit of said central processing unit, said central processing unit can be caused to output data to said scrambling device and said scrambling device can scramble the output data of said central processing unit with said first scrambling pattern and write the scrambled data to said storage device;

when said first region is separated but said second region is not separated yet, data read out of said storage device can be descrambled with said first scrambling pattern by said scrambling device and the

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descrambled data can be transferred to said central processing unit, and by connecting said external apparatus to said connector and directly controlling the internal logic circuit of said central processing unit, said central processing unit can be caused to output data to said scrambling device and said scrambling device can scramble the output data of said central processing unit with a second scrambling pattern, a scrambling pattern different from said first scrambling pattern, and write the scrambled data to said storage device; and

when said first region and said second region are both separated, data read out of said storage device can be descrambled with said second scrambling pattern by said scrambling device and the descrambled data can be transferred to said central processing unit, but data cannot be written to said storage device via said scrambling device by directly controlling the internal logic circuit of said central processing unit through said external apparatus connected to said connector.

25. An electronic apparatus according to any one of claims 20 to 24, wherein said central processing unit is an IEEE 1149 standard compliant device.

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